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mineralogy to the various arts—is not an easy one. The two branches of the subject are too distinct to be easily fused together. The methods of crystallography and the process of making bricks are not very closely related. About one-half of the volume is devoted to the preliminary discussion of the general characters of minerals, physical and chemical, and to the description of species. This portion of the work is not only in no sense an original contribution, but it is not even a satisfactorily competent presentation of the present condition of the science. The author is evidently a faithful student of Haüy and Dufrénoy, but hardly seems to be aware of any thing that has been done, even in his own country, in the last twenty-five or thirty years. The chapters on crystallography and the optical characters of minerals, the classification and description of species, are all consistent in being what Dufrénoy would have given us in 1856. Even in minor points, modern innovations have been resisted: silica still appears in all the formulas as  $\text{SiO}_3$ , water as  $\text{H}_2\text{O}$ ; and so on.

The portion of the work which is devoted to the practical side of the subject contains, however, much that is interesting and valuable, if not always original. In the preparation of it the author states that he has visited personally many manufactories and technical works, as well as consulted numerous standard books upon the subject. Some of the topics discussed in greatest detail are the coal industry, the manufacture of glass, of powder, of bricks, of porcelain, the treatment of various ores, and so on. The descriptions here are minute rather than profound, many trivial points receiving more attention than they deserve. The frequent long quotations from other authors, too, give the whole treatment rather a patchwork character. The reader looks in vain in this part of the work, as in the other, for evidence that the author is thoroughly acquainted with the progress that recent years have brought, especially outside of his own country. However, it must be allowed that a large amount of interesting matter has been brought together, particularly in regard to some of the leading French industries; and for this the book should have all the credit that it deserves. That the author had only a French audience in mind, is shown by the fact that the bibliography at the close of the volume contains (with the exception of two translations) only titles of French works; but while no fault need necessarily be found with this, we can but regret that he has not made more use of such admirable works

as those of Des Cloizeaux and Mallard, which are mentioned in his list.

#### GEOLOGY OF THE VIRGINIAS.

In publishing this compilation of Professor Rogers's contributions to the geology of the Virginias, Mrs. Rogers has conferred a substantial benefit upon the science; for Professor Rogers's investigations still remain the most important and the only systematic or comprehensive attempt to elucidate the geology of these great states, which are not excelled in structural complexity, or the interest of the problems which they present, by any district in eastern North America. But his reports were printed from forty to fifty years ago; and copies of them are now so extremely rare, that many geologists of the present generation have probably not seen them, and are not aware of the vast amount of careful and enduring work which they represent. Hence this reprint is in many respects as fresh and timely as the original publications, with the great advantage of combining in one convenient volume all of the annual reports and the widely scattered separate papers, and thus forming a handbook of Virginian geology which will be indispensable to the student of the Appalachian system, and constitute a necessary starting-point for all future investigations in the Old Dominion.

The geological survey of Virginia was instituted in 1835, and Professor Rogers's annual reports to the legislature for the first seven years make up the principal part of this volume. These reports were very properly designed for popular instruction, and are models of clearness and simplicity of style, without evident sacrifice of scientific accuracy and detail; while the general absence, in both terminology and theory, of indications that they were written nearly half a century ago, is a matter of constant surprise.

The difficulties attending geological explorations in Virginia were much greater at that time than now; but Professor Rogers's energy and industry had brought the survey of the largest area ever at that time subjected to systematic geological examination within one year of completion, according to his original plan, when it was abruptly terminated by the failure of the legislature to continue the appropriation. No provision was made for the final report, which was to embody in a digest-

ed form every important result attained in the progress of the survey, including the illustrative maps and sections. It is more pleasant than properly characterizing this short-sighted policy of the state, to call attention at this late day to the fact that this reprint of the annual reports is accompanied by a very satisfactory geological map of the Virginias, colored by Professor Rogers; by a generalized section from Chesapeake Bay to the Ohio River; and by ninety-six more local and detailed sections, traversing nearly every part of the two states, but especially the great valley and the neighboring mountain ranges. The sections are colored, and are exact reproductions of the originals drawn by the author. They are indicated on the map by lines numbered to correspond with the plates.

The arrangement of the book is chronological; and the annual reports are followed by several papers, published between 1840 and 1842, on the thermal springs of Virginia, illustrated by a plate of sections.

The often quoted paper on the physical structure of the Appalachian chain, by Profs. William B. and Henry D. Rogers, with three plates, dates from the same period, and must be regarded not only as an admirable summary of the characteristics of the Appalachian system, but also as an important chapter in the history of geological theories. This is followed by the evidence supporting Professor Rogers's view that the coal-bearing rocks of eastern Virginia are Jurassic, with a plate of coal-plants; and a discussion of the divisions of the tertiary, with five plates of eocene and miocene shells.

The volume concludes with an account of the infusorial deposit of Virginia, as exposed in the Fort Monroe artesian well, five hundred and fifty-eight feet below the surface. This was published in 1882, and, in the language of the editor, has a special interest, not only as the last published investigation made by Professor Rogers, but as being in the *same* field in which he began his labors half a century before.

The volume is provided with a good general index, and a full index of persons and places; and it is so conveniently compact, that the magnitude of the work is not realized until one attempts to read it.

#### NOTES AND NEWS.

THE statue in marble erected to the memory of Charles Darwin, executed by Mr. Boehm for the subscribers to the Darwin memorial, has been placed in

the great hall of the new building at South Kensington containing the natural-history collections of the British museum. It is conspicuously placed at the head of the first flight of the great staircase, "as though," says the *Times*, "to welcome all coming generations of students as they enter the door of the building in which so many of the materials of their work are gathered together. So far as was possible, Mr. Boehm has rendered the very features and character of his subject; and all Mr. Darwin's friends agree, that a likeness more characteristic, whether in face or attitude, could hardly have been produced, even by a sculptor who had been intimately acquainted with him in his lifetime. The head is full of dignity: the great brow, the flowing beard, the expression, full at once of intense thought and of human feeling, have been caught and fixed in the marble." We have given elsewhere the address of Professor Huxley on the occasion.

— Among recent appointments at Harvard college, we note that of Winfield Scott Chaplin as professor of engineering; William Morris Davis, assistant professor of physical geography for five years; and Dr. Harold C. Ernst, demonstrator of bacteriology for 1885-86. The degree of LL.D. was conferred on Alexander Agassiz the naturalist, and Benjamin Apthorp Gould the astronomer.

— We learn from *Nature*, that on the receipt of communications concerning the proposed change in the time for beginning the astronomical day, as recommended by the recent International meridian conference at Washington, the lords of the committee of council on education requested the following committee to advise them as to what steps should be taken in the matter: Prof. J. C. Adams, the astronomer royal; Capt. Sir F. Evans, the hydrographer of the navy; Gen. Strachey; Dr. Hind; and Col. Donnelly. In accordance with their recommendations, copies of the report of the delegates to the conference at Washington, together with the resolutions adopted by that body, have been sent to various departments of the state, and to the following societies, etc.: Society of telegraphic engineers, Royal astronomical society, Royal society, Submarine telegraph company, Eastern telegraph company, Eastern and South-African telegraph company, Eastern extension, Australasia and China telegraph company, and the Railway clearing-house. They have been informed that these resolutions of the conference appear to my lords of the committee of council to be such as commend themselves for adoption; but, before informing the American government to that effect, their lordships would be glad to receive the opinion of the various societies on the subject.

— The last annual report of the Russian geographical society contains extracts from letters addressed by Prijevalski to the Grand Duke Alexander Alexandrovitch, which contains some further interesting details about his Hoang-ho journey. About the end of May he reached, as known, the foot of the Burkhan-budda Mountains, which enclose the high Thibet plateau separating it from Tsaidam.